

4

<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/440,795	ADKINS ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Patrick Miller	2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 05/14/04.
2. ☒ The allowed claim(s) is/are 1-17, 19-24 and 26-32.
3. ☒ The drawings filed on 15 November 1999 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

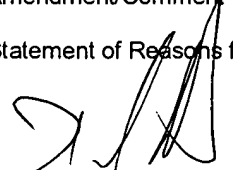
Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |  |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment                               |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|   | 9. <input type="checkbox"/> Other _____  |

  
**DAVID MARTIN**  
 SUPERVISORY PATENT EXAMINER  
 TECHNOLOGY CENTER 2800

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments, see page 11 of the response filed on May 14, 2004, with respect to claims 1, 17, 24, and 32 have been fully considered and are persuasive. The rejection of claims 1, 17, 24, and 32 has been withdrawn.

### ***Allowable Subject Matter***

2. Claims 1-17, 19-24, and 26-32 are allowed.
3. The following is an examiner's statement of reasons for allowance:
  - With respect to claims 1, 11, and 31, the primary reason for allowance is because the Prior Art does not disclose a control system for a motor that implements a digital phase detector that follows a describing function to model non-linear components of a reference signal.
  - With respect to claim 17, the primary reason for allowance is because the Prior Art does not disclose a control system for an inkjet print head that has a digital phase frequency detector that follows a describing function.
  - With respect to claim 24, the primary reason for allowance is because the Prior Art does not disclose a control method for an inkjet print head where the phase of a feedback signal is compared with a reference signal using a digital phase frequency detector and outputting a corresponding comparison signal, where the comparison step follows a describing function.
  - With respect to claim 28, the primary reason for allowance is because the Prior Art does not disclose modeling the phase detector in a closed loop, phase locked loop

Art Unit: 2837

configuration with a describing function and dampening the frequency response of the describing function by anticipating a step response of the motor during initial movement.

- With respect to claims 29 and 30, the primary reason for allowance is because the Prior Art does not disclose a control system for an inkjet print head that has a frequency detector that provides system damping by anticipating a step response of the motor.
- With respect to claim 32, the primary reason for allowance is because the Prior Art does not disclose a control system for a DC motor that uses a digital phase detector to compare phase of the feedback signal from the movement detector with the phase of a reference signal and output a comparison signal; the digital phase detector follows a describing function; and the a digital loop filter filters noise from the *comparison* signal.

4. Therefore, based on the arguments and amendments presented by the Applicant, the Examiner acknowledges the Prior Art fails to anticipate or make obvious the Applicant's claimed invention.
5. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

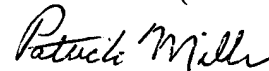
***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick Miller whose telephone number is 571-272-2070. The examiner can normally be reached on M-F, 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Martin can be reached on 571-272-2800 ext 41. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9318.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-3431.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Patrick Miller  
Examiner  
Art Unit 2837

pm  
August 22, 2004